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International Financial Liberalization and Economic Growth

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Abstract

This paper pulls together existing theory and evidence to assess whether international financial liberalization, by improving the functioning of domestic financial markets and banks, accelerates economic growth. The analysis suggests that the answer is "yes." First, liberalizing restrictions on international portfolio flows tends to enhance stock market liquidity. In turn, enhanced stock market liquidity accelerates economic growth primarily by boosting productivity growth. Second, allowing greater foreign bank presence tends to enhance the efficiency of the domestic banking system. In turn, better-developed banks spur economic growth primarily by accelerating productivity growth. Thus, international financial integration can promote economic development by encouraging improvements in the domestic financial system.

1. Introduction

Will policies that encourage international financial integration spur long-run economic growth in developing countries? The World Bank, International Monetary Fund, and the World Trade Organization believe the answer is "yes." Paul Krugman (1993) concludes that the answer is "no." He argues that international financial integration is unlikely to be a major engine of economic development. He draws this conclusion after noting that (1) capital is relatively unimportant for economic development, and (2) large flows of capital from rich to poor countries have never occurred. This view suggests that a developing country that liberalizes international financial interactions is unlikely to boost domestic capital formation. Moreover, even if foreign funds substantially increase the domestic capital stock, this would ignite a depressingly small amount of long-run growth. Thus, Krugman disagrees with all of the building blocks of a traditional argument for international financial integration in developing countries.

The purpose of this paper is to pull together some existing theory and evidence to reassess Krugman's pessimistic conclusion about the role of international financial market integration in economic growth. I do not challenge the two underlying premises of Krugman's argument. Indeed, considerable work confirms Krugman's first point that physical capital accumulation does not account for much of the cross-country differences in economic growth rates. Furthermore, Blomstrom et al. (1996) show that more investment does not cause faster economic growth. While it is possible to dispute Krugman's (1993, p. 22) second premise that "there is nothing in past historical experience to suggest that developing countries will be the recipients of large capital flows," I take a different approach. Instead of challenging the premises underlying Krugman's argument, I consider other channels via which international financial integration can influence long-run economic growth.

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The basic conclusion of my paper is more optimistic about the role of international financial integration than Krugman's. Three observations underlie this optimism. First, a large body of evidence suggests that total factor productivity (TFP) accounts for the bulk of cross-country differences in the growth rate of the gross domestic product (GDP) per worker. Second, considerable theory and evidence indicate that domestic financial systems exert a large, causal impact on economic growth *primarily* by boosting TFP. Third, liberalization of restrictions on foreign capital and foreign banks tends to enhance the functioning of the domestic financial system. Thus, international financial integration can boost the operation of domestic financial systems, which in turn stimulates improvements in resource allocation and faster economic growth. While each of the three building blocks of this optimistic conclusion emerge from separate analyses, together they form a coherent perspective linking financial integration to economic growth.

While I present evidence consistent with the view that international financial integration spurs development, the narrow focus of this paper implies that its conclusions must be interpreted cautiously. For instance, a substantial literature evaluates the impact of liberalization on macroeconomic and financial fragility (Hanson, 1994; McKinnon, 1996). Although I briefly discuss how foreign bank entry influences banking sector fragility and how foreign portfolio flows influence stock market volatility, the focus of this paper is on the long-run ramifications of international financial integration. Also, an enormous literature examines a multitude of potential benefits and costs associated with liberalizing restrictions on international finance. I do not comprehensively evaluate all of the pros and cons. Rather, I simply argue that international financial integration can positively influence economic growth through channels that the literature does not frequently emphasize. Specifically, I first show that the presence of foreign banks tends to foster a more efficient domestic banking system, which positively effects productivity and growth. Second, liberalizing restrictions on international portfolio flows tends to boost domestic stock market liquidity, which positively effects productivity and growth. Thus, international financial integration can spur growth without inducing large capital flows into developing countries.

Section 2 summarizes the evidence on the comparative roles of physical capital and TFP in accounting for cross-country differences in economic growth. Section 3 notes that domestic stock market and banking development influences economic growth primarily by affecting TFP growth. Section 4 shows that international portfolio flow liberalization tends to increase domestic stock market development. Thus, liberalizing restrictions on international portfolio flows fosters stock market development with positive implications for TFP growth. Section 5 shows that greater foreign bank presence tends to increase domestic banking system efficiency. This also implies that liberalizing restrictions on foreign bank entry enhances domestic banking efficiency with positive implications for TFP growth. Section 6 concludes.

2. Growth Accounting

Domar's (1946) extraordinarily influential article predicts that growth is proportional to the ratio of investment to GDP: more investment translates into faster long-run growth. This "capital fundamentalist" view helps provide the basis for (i) development strategies that focus on boosting domestic savings, (ii) international aid to fill "financing gaps," (iii) international development bank loans, and (iv) openness to international capital flows. Yet, Easterly (1999) crisply notes that (1) Domar never intended his model to be a model of long-run growth, and (2) Domar explicitly asserted 40

years ago that his model should *not* be used as a model of long-run growth. Thus, as Easterly emphasizes, it is ironic that Domar's model continues to be the mostly widely used growth model in economic history.

While capital fundamentalism still shapes the policies of most development institutions (King and Levine, 1994; Easterly, 1999), a large body of evidence suggests that (1) physical capital differences do not account for much of the long-run growth differences across countries, and (2) physical capital, savings, and human capital do *not* exert a causal influence on long-run growth. Since the growth accounting literature is evaluated extensively elsewhere, I very cursorily review a few select findings.

Decomposing Growth

Using different data, Klenow and Rodriguez-Clare (1997) and Easterly and Levine (2000) compute that part of cross-country difference in economic growth rates accounted for by cross-country differences in factor accumulation and TFP growth. Their variance-decompositions provide information on the relative importance of TFP-growth and factor accumulation in accounting for cross-country differences in growth rates. More specifically, they use a standard production function of the form

$$y = Ak^{\alpha}, \tag{1}$$

where y represents national output per person, k is the physical capital stock per person, α equals the share of capital income in national output under perfect competition, and A is technological progress. To do the variance-decomposition, note that

$$\begin{aligned}\mathrm{Var}(\Delta y/y) = {} & \mathrm{Var}(\Delta TFP/TFP) + (0.4)^2\{\mathrm{Var}(\Delta k/k)\} + 2(0.4) \\ & \{\mathrm{Cov}(\Delta TFP/TFP, \Delta k/k)\}.\end{aligned} \tag{2}$$

After obtaining measures of output growth, capital stock growth, and selecting a value of capital's share (0.4), Easterly and Levine (2000) find that TFP growth accounts for more than 60% of output growth (excluding the positive covariance term). They also find that physical capital alone (excluding the covariance term) does not account for more than 25% of the cross-country variation in per capita GDP even after experimenting with different measures of capital.

Including human capital in the variance-decomposition does not change the conclusion that factor accumulation accounts for comparatively little of the cross-country variation in growth rates. Klenow and Rodriguez-Clare (1997) and Easterly and Levine (2000) find that TFP growth accounts for about 90% of the cross-country growth differences. Thus, TFP growth—that part of growth not accounted for by factor accumulation—explains the bulk of international growth rate differences.

Growth, its Sources, and Causality

Researchers have also examined the causal relationship between factor accumulation and growth. Blomstrom et al. (1996) show that output growth Granger-causes investment. This suggests that increases in the capital stock are generally not the igniting source of growth. Bils and Klenow (1998) study human capital. They find that economic growth tends to exert a causal influence on human capital accumulation, but that increases in human capital do not have a causal impact on growth. Thus, the evidence suggests that physical and human capital accumulations are not exerting causal influences on long-run growth.

The evidence from the growth decomposition exercises and the causality tests has important implications for investigating the growth effects of international financial integration. The growth accounting and causality findings do not mean that capital, saving, and human capital are unimportant. The evidence does, however, suggest that something else, besides readily observable factors of production, is important for explaining differences in growth. In terms of public policies, these results suggest that policies focused on improving the allocation of capital may have bigger growth dividends than policies focused on boosting physical capital accumulation. Thus, if international financial liberalization improves the allocation of capital rather than capital accumulation per se, integration may nonetheless have meaningful growth effects.

3. Finance and Growth

This section discusses a broad class of theories and empirical evidence that suggest that financial systems have their biggest growth effects via capital allocation. I first discuss intermediaries and then turn to equity markets.

Financial Intermediaries

The costs of acquiring information, enforcing contracts, and making transactions create incentives for the emergence of financial intermediaries to mitigate the negative repercussions of these market frictions. In arising to ameliorate market frictions, financial intermediaries may facilitate the efficient allocation of resources across space and time.

Consider first information costs. Intermediaries can reduce the costs of acquiring and processing information about firms and managers (Diamond, 1984; Boyd and Prescott, 1986). Without intermediaries, each investor would face the high costs of evaluating firms and managers. This would lead to a duplication of effort. Moreover, small investors might attempt to free-ride off other investors. This free-rider problem can lead to too little effort being expended toward acquiring information and monitoring managers, with adverse effects on resource allocation. Instead of this inefficient situation, financial intermediaries can evaluate firms and managers for a large group of investors. By reducing duplication and free-riding problems, financial intermediaries promote better information about firms. Since it is particularly difficult to monitor the performance of managers once outsiders have funded firms, financial intermediaries may play a particularly important role in rigorously monitoring managers (Boyd and Prescott, 1986). By improving information acquisition, financial intermediaries can enhance the efficiency of capital allocation and thereby affect long-run economic growth (Greenwood and Jovanovic, 1990; King and Levine, 1993b).

Second, financial intermediaries may ease risk sharing and pooling by lowering transactions costs. Financial intermediaries may lower the costs of holding a diversified portfolio when there are fixed costs associated with each purchase. If high-return projects are riskier than low-return projects, then enhanced diversification can encourage a reallocation of capital to higher-return projects. Moreover, financial intermediaries may facilitate the intertemporal smoothing of risk (Allen and Gale, 1997). Risks that cannot be diversified at a particular point in time, such as macroeconomic shocks, can be diversified across generations. Long-lived intermediaries can facilitate intergenerational risk sharing by investing with a long-run perspective and offering returns that are relatively low in boom times and relatively high in slack times. Also, intermediaries can eliminate liquidity risk with positive growth effects (Bencivenga and Smith, 1991). Many profitable investments require a long-term commitment of capital,

but investors are often reluctant to relinquish control of their savings for long periods. Intermediaries make long-term investment more attractive by pooling savings and engaging in liquidity transformation. By pooling lots of resources, they can invest just enough in short-term securities to satisfy those with liquidity needs. At the same time, intermediaries can make a long-run commitment of capital to firms. By facilitating longer-term, more profitable investments, well-functioning financial intermediaries improve the allocation of capital and thereby boost productivity growth.

Third, financial intermediaries facilitate savings mobilization—pooling—by economizing on the transactions costs associated with mobilizing savings from many disparate agents and by overcoming the informational asymmetries associated with making savers comfortable in relinquishing control of their savings. By effectively mobilizing savings, financial intermediaries not only encourage capital accumulation. Financial intermediaries also improve resource allocation by permitting the exploitation of economies of scale. For example, Bagehot (1873, pp. 3–4) argued that a major difference between England and "all rude countries" was that in England the financial system could mobilize resource for "immense works." Bagehot was very explicit in noting that it was not the national savings rate per se, rather it was the ability to pool society's resources and allocate those savings toward the most productive ends that drives long-run economic success.

An enormous body of evidence examines the effectiveness of intermediaries in ameliorating informational asymmetries, reducing transaction costs, and facilitating contracting. Since I have reviewed this literature elsewhere (Levine, 1997), here I simply note that a diverse empirical literature finds that the level of financial intermediary development has a large, causal effect on long-run economic performance. The evidence emerges from firm-level studies (Demirgüç-Kunt and Maksimovic, 1998), industry-level studies (Rajan and Zingales, 1998), country-case studies (Cameron, 1967; Haber, 1991), time-series studies (Neusser and Kugler, 1998; Rousseau and Wachtel, 1998), cross-country studies using traditional econometric methodologies (King and Levine, 1993a,b), cross-country studies using basic instrumental variable procedures (Levine, 1998, 1999), and new pooled cross-country, time series that control for potential simultaneity and omitted variable biases (Beck et al., 2000; Levine et al., 2000). Two messages emerge: (1) domestic banking system development has a large causal impact on economic growth; and (2) domestic banking system development influences growth primarily by affecting total factor productivity growth. Thus, if international financial integration boosts the functioning of the domestic banking system, this could have large growth effects.

Stock Markets

Well-functioning stock markets also influence growth primarily by influencing the efficiency of capital allocation. Again, first consider information. Theory suggests that as stock markets become more liquid, agents may have greater incentives to expend resources in researching firms (Holmstrom and Tirole, 1993; Boot and Thakor, 1997). In larger more liquid markets, it is easier to profit from new information by trading in well-functioning markets. This improved information about firms improves resource allocation, with corresponding implications for economic growth.

Besides influencing the acquisition of information *ex ante*, well-developed stock markets may help in exerting corporate control. Stock markets may stimulate greater corporate control by facilitating takeovers (Jensen and Meckling, 1976; Stein, 1988) and by making it easier to tie managerial compensation to performance (Diamond and

Verrecchia, 1982; Jensen and Murphy, 1990). Thus, if well-functioning stock markets facilitate takeovers, then outsiders can purchase poorly operating firms, change management, and set the stage for greater profitability. Similarly, if well-functioning stock markets make it easier to link managerial compensation with stock price performance, then this helps align the interests of managers with those of firm owners. Through this channel, well-functioning markets can enhance managerial incentives and boost resource allocation.

Stock markets can also influence risk diversification and the ability to avoid liquidity risk. Stock markets are best designed for traditional, cross-sectional risk sharing, where individuals can create a tailor-made portfolio of assets. In better markets—markets where it is easier to trade securities—it is easier for agents to construct portfolios with a minimum of middlemen. Markets can also ease liquidity risk (Levine, 1991; Bencivenga et al., 1995). Liquid equity markets make long-term investment more attractive because they allow savers to sell equities quickly and cheaply if they need access to their savings. At the same time, companies enjoy permanent access to capital raised through equity issues. By facilitating longer-term, more profitable investments, liquid markets improve the allocation of capital and thereby boost productivity growth.

While not as extensive as the work on financial intermediation, the body of empirical evidence on the relationship between stock market development and growth suggests a positive link between stock market liquidity and growth. This result emerges from pure cross-sectional studies (Levine and Zervos, 1998a), time-series procedures (Rousseau and Wachtel, 1998), firm-level investigations (Demirgüç-Kunt and Maksimovic, 1998), and analyses using instrumental variables (Levine, 2001). The messages that emerge from the stock market studies are similar to those from the intermediary studies: (1) stock market liquidity has a large causal impact on economic growth; and (2) stock market liquidity influences growth primarily by affecting total factor productivity growth. Thus, if international financial integration boosts access to liquid equity markets, this could have large growth effects.

4. Capital Controls and Stock Market Liquidity

In light of theory and evidence that stock market liquidity influences long-run economic growth rates, this section addresses the following question: what happened to stock market liquidity following capital control liberalization in 15 emerging market economies? I use evidence from Levine and Zervos (1998b) to answer this question.

To examine the relationship between capital control liberalization and stock market liquidity, Levine and Zervos (1998b) first identify major policy changes involving portfolio flows. These policy changes involve alterations in restrictions governing capital flows and the repatriation of both principal and dividends. Then, Perron's (1989) test for structural breaks is used to evaluate whether stock market liquidity changes after the policy change date. As stock market liquidity in many countries tends to trend upwards, it is important to distinguish between unit roots and structural changes in the time-series properties of stock market liquidity following capital control liberalization. Although this event-study methodology does not control for other factors affecting stock market development, the same event across a wide variety of countries and at different points in time yields similar results. The data indicate that stock markets tend to become more liquid following the liberalization of restrictions on international portfolio flows.

Stock Market Development and Policy Changes

To measure stock market liquidity, I use the *value-traded ratio*, which equals total shares traded on the stock market exchange divided by GDP. The value-traded ratio measures the organized trading of firm equity as a share of national output. Although this measure of "liquidity" does not directly quantify the trading costs or the uncertainty associated with market prices, settlement, etc., this indicator quantifies the level of trading relative to the size of the economy. Moreover, this indicator is directly motivated by theoretical models of stock market liquidity (Levine, 1991; Bencivenga et al., 1995). Other measures of stock market liquidity produce similar results, such as the *turnover ratio*, which equals the value of stock transactions divided by market capitalization.

To evaluate what happens to stock market liquidity after countries change international capital controls, we need to identify dates on which countries changed their policies regarding international capital flows. Selecting the one or two key dates when a country importantly changed policies toward international capital flows is both arduous and, ultimately, more arbitrary than optimal. Levine and Zervos (1998b) review the International Monetary Fund's *International Exchange Restrictions*, the International Finance Corporation's *Emerging Markets Fact Book*, and various World Bank country reports from 1980 to 1993. Based on this information, they identify dates when countries liberalized restrictions on international capital flows or the repatriation of dividends. Levine and Zervos (1998b) then discuss and choose "major" policy changes, where major means corroborated in more than one publication and described in the reports as "major" or "significant." From this assessment, I use the 15 countries with data on stock market liquidity. These are listed in Table 1.

Table 1. Did Market Liquidity Rise Following Liberalization?

Country	*Total value traded/GDP*
Argentina	Y
Brazil	Y?
Chile	Y
Colombia	Y
India	Y
Jordan	Y
Korea	Y
Mexico	Y?
Malaysia	N
Pakistan	Y
Philippines	Y
Portugal	Y
Thailand	Y?
Turkey	Y
Venezuela	Y

Notes: Y indicates significant improvement in liquidity following liberalization. Y? indicates significant improvement in liquidity following policy event date, but the errors from the structural break equation remain nonstationary. N indicates there was not a significant improvement in liquidity following the policy event date. No country exhibited a significant reduction in market liquidity.
Source: Levine and Zervos (1998b).

Methodology for Examining Liberalization and Stock Market Liquidity

To examine the behavior of stock market liquidity before and after a change in policy toward international capital flows, I begin with an examination of the time-series properties of stock market liquidity. If liquidity is stationary, one can use a simple comparison of the means of stock market liquidity before and after the policy event date to gauge the effects of the policy change on liquidity. If stock market liquidity is trending upwards, then a *t*-test comparison of pre- and post-event date means is invalid. Moreover, there may exist structural breaks in the time-series properties of stock market liquidity, resulting from major policy changes. This would complicate the interpretation of unit-root tests. Pierre Perron (1989, p. 1361) shows how "standard tests of the unit-root hypothesis against trend stationary alternatives cannot reject the unit-root hypothesis if the true data generating mechanism is that of stationary fluctuations around a trend function that contains a one-time break."

In the present case, the inability to reject the hypothesis of a unit root may instead imply the existence of a one-time break in stock market liquidity when countries liberalized international capital flows. Consequently, I use a two-pronged approach to examine the behavior of stock market liquidity.

1. First, test for a simple unit root. If the null hypothesis of a unit root is rejected, I use the simple *t*-test comparison of means for each indicator before and after the event date. I use one lag. I allow for three variations of the "Dickey–Fuller" tests: an intercept, an intercept and a linear time trend, and no trend or intercept. Using a *p*-value of 0.05, I then evaluate the null hypothesis of a unit root. For all of the cases considered in this paper, the three variations of the test produce identical conclusions regarding the rejection (or "acceptance") of a unit root.
2. Second, if the null hypothesis of a unit root cannot be rejected, I use Perron's (1989) technique to test for a structural break in the series. In six countries, the hypothesis of a unit root cannot be rejected at the 0.05 significance level: Brazil, Colombia, Korea, Mexico, Pakistan, and Turkey.

For those countries where the null hypothesis of a unit root cannot be rejected, I test for a structural break. As in Perron (1989), consider three different models for each indicator series. The first allows for an exogenous change in the level of the series, the second permits an exogenous change in the growth rate of the series, and the third permits both. For stock market liquidity, y, these models are as follows:

$$y_t = \mu_1 + (\mu_2 - \mu_1)DUM_t + \varepsilon_t,$$

$$y_t = \mu_1 + \beta_1 t + (\beta_2 - \beta_1)TDUM_t + \varepsilon_t,$$

$$y_t = \mu_1 + \beta_1 t + (\mu_2 - \mu_1)DUM_t + (\beta_2 - \beta_1)TDUM_t^* + \varepsilon_t,$$

where:

$DUM_t = 1$ if $t >$ policy event date t^*, 0 otherwise

$TDUM_t = t - t^*$ if $t >$ policy event date t^*, 0 otherwise

$TDUM_t^* = t$ if $t >$ policy event date t^*, 0 otherwise.

Tests for a structural break entail testing whether the coefficients on DUM, $TDUM$, and $TDUM^*$ are significantly different from zero. However, these *t*-tests are valid only if the residuals from the above three models do not contain a unit root. Consequently,

Levine and Zervos (1998b) (1) run regressions for the above three models, (2) test whether there is a one-time structural break at the policy event date for each stock market indicator, and (3) use Perron's calculated critical values to test whether the residuals from the regressions are stationary.

Results on Liberalization and Stock Market Liquidity

Table 1 summarizes the evidence regarding the question of whether the policy event dates are associated with a structural break and a subsequent rise in stock market liquidity. Three types of entries are possible.

- Y: indicates that liberalizing international capital controls had a positive effect on stock market liquidity. A country can receive a Y in two ways. First, if liquidity in that country does not exhibit evidence of a unit root, then a simple *t*-test comparing liquidity before and after the policy event date is used. Using monthly data for each country, Levine and Zervos (1998b) compute the average of each indicator before the policy event date (period 1) and use a *t*-test to detect whether the value of the indicator changed significantly following the policy change (period 2). If the value of an indicator is significantly larger in period 2 than period 1, then the country gets a Y. Second, if liquidity in that country fails to reject the hypothesis of a unit root, then Levine and Zervos (1998b) conduct a test of whether the series exhibits a one-time structural break at the event date. Thus, if liquidity does not reject the unit root hypothesis *and* the series displays a significant improvement at the event date (defined by the significance of the dummy variable coefficients in the three equations) *and* the errors from this structural break regression pass Perron's test of stationarity, then the country gets a Y. The entry in Table 1 is Y, indicating that "yes"—according to this test—stock market liquidity improved following international capital control liberalization.
- N: indicates that liberalizing international capital controls did *not* have a positive effect on stock market liquidity using either the simple means test or Perron's structural break test as appropriate. Note, an entry of N does not indicate that liquidity worsened. It merely indicates that there is not a significant increase in stock market liquidity following the liberalization of restrictions on international capital controls. Indeed, no country experienced a significant reduction in stock market liquidity following liberalization.
- Y?: indicates that liberalizing international capital controls had a positive effect on stock market liquidity, but the finding needs to be qualified. Specifically, the symbol "Y?" means that liquidity for that country failed to reject the unit-root hypothesis. Thus, a test of a one-time break at the event date was performed. The test indicated the presence of a positive structural break, but the resultant errors failed to pass Perron's stationarity test. For these cases, Levine and Zervos (1998b) graph the actual and fitted values from the model. In all cases, the graphs clearly indicate a sharp improvement in liquidity following the policy event date.

The results indicate a strong tendency for liquidity to rise following the liberalization of international capital controls. It must be emphasized, however, that the event-study methodology that I use does not control for other factors, such as other policy reforms. Nonetheless, 14 out of the 15 countries exhibit strong evidence of greater stock market liquidity after the country eases restrictions on international capital flows. No country saw liquidity fall significantly after liberalizing.

Policy Implications

These results have at least two policy implications. The first result is direct. The second requires an additional layer of analysis. First, stock market liquidity tends to improve following the reduction of impediments to international capital and dividend flows. Although this paper's findings do not establish a causal link running from policy to stock market development, the results are consistent with the view that international capital flow liberalization may be a useful policy tool for countries seeking to boost stock market development.

A second potential implication builds on other research. Levine and Zervos (1998a) show that countries with more liquid stock markets tend to enjoy faster rates of real per capita GDP over subsequent decades even after controlling for many other economic, political, and legal factors affecting long-run growth. Thus, increases in stock market liquidity tend to follow international capital flow liberalization, and countries with greater stock market liquidity grow faster over future decades. While other work suggests that liberalization tends to increase stock return volatility (Levine and Zervos, 1998b), this increase is short-lived and volatility is *not* negatively associated with long-run economic growth (Levine and Zervos, 1998a). Moreover, greater openness to international capital flows tends to be associated with lower stock return volatility in the long run (Demirgüç-Kunt and Levine, 1996). Thus, if policymakers have the patience to weather some short-run volatility, liberalizing restrictions on international portfolio flows and the repatriation of dividends and principal offers expanded opportunities for economic development. While capital control liberalization does not represent a financial elixir for economic growth, there are goods reasons to believe that lowering barriers to international investing will boost equity market development and promote economic growth.

5. Foreign Bank Presence and Domestic Efficiency

In light of theory and evidence that banking sector development influences long-run economic growth rates, this section addresses the following question: what happens to banking sector efficiency when foreign banks gain access to the domestic market? I use firm-level evidence from Demirgüç-Kunt et al. (1998) to answer this question.

Concepts and Cases

As described in Levine (1996), easing restrictions on foreign bank entry may improve the quality, pricing, and availability of banking services directly and indirectly. Foreign banks may directly bring new and better skills, management techniques, training procedures, technology, and products to the domestic market. Foreign banks may indirectly enhance domestic banking efficiency by stimulating competition in domestic financial markets. This intensified competition could put downward pressure on profits and overhead expenses. Furthermore, foreign banks may accelerate the development of ancillary institutions that promote the flow of information about firms. For instance, foreign banks may encourage the emergence of better rating agencies, accounting and auditing firms, and credit bureaux that acquire and process information. Furthermore, foreign bank presence may stimulate improvements in domestic supervision and regulation. When Mexico made a reciprocal agreement to open to United States banks under NAFTA, this spurred an improvement in Mexican regulatory, supervisory, and accounting standards. Specifically, to gain access to the United

States, Mexican banks had to demonstrate to the Federal Reserve that Mexican supervisors adequately supervise Mexican banks. Thus, once Mexico liberalized entry restrictions on US banks, there were pressures to harmonize prudential regulations, in areas such as capital adequacy, valuation and accounting principles, related-party transactions, and conflict-of-interest provisions. Although too late to avoid the 1994/95 Mexican banking crisis, liberalizing entry restrictions on foreign banks may set in motion forces that improve domestic supervisory and regulatory systems. Improvements in bank supervision and regulation would (tautologically) improve incentives in the banking industry and thereby improve the quality of bank services.

There have been country studies of the effects of liberalizing foreign bank entry restrictions. For example, McFadden (1994) finds that, in the case of Australia, domestic banks responded aggressively to liberalization. They improved their operations, invested in new technologies, and cut costs, such that foreign banks were less profitable and captured a much smaller share of the domestic market than many analysts expected. Overhead costs fell and individuals enjoyed better services than were available before Australia liberalized foreign bank entry. Also, enhanced foreign bank competition has forced lower commission fees in Turkey; for example, fees on letters of credit fell from 1.5 to 0.5%, and fees on letters of guarantee fell from 4 to 1% following liberalization. Foreign banks can also directly improve banking services. In Spain, foreign banks pioneered the commercial paper market, the swap market, and spurred the boom in credit cards and ATMs. For Korea, Demirgüç-Kunt et al. (1998) present evidence consistent with the view that easing restrictions on foreign banks stimulated improvements in Korea's domestic banking system. As barriers to foreign banks fell, Korean banks responded by boosting the quality of their loan portfolios and raising banking sector productivity. The aggressive response by domestic banks to foreign bank competition suggests that the major beneficial effect of removing impediments to foreign banks is indirect: the more competitive atmosphere spurs rapid improvements in domestic bank efficiency, which positively influences economic development.

Methodology

To investigate the connection between bank efficiency and the presence of foreign banks, Demirgüç-Kunt et al. (1998) use bank-level accounting data from 80 countries over the period 1988 to 1995. The income statement and balance sheet data of about 7,900 individual commercial banks in 80 countries are from the BankScope database. The data cover approximately 90% of bank assets in each country. They use two measures of banking efficiency:

before-tax profits/*ta* = a bank's profits (before taxes) divided by total assets

overhead/*ta* = a bank's entire overhead costs divided by total assets.

Higher values of these measures are interpreted as representing *lower* levels of efficiency. High profits may reflect a lack of competition. Large overhead costs may reflect a less efficient management and organizational system. While recognizing that these are imperfect measures of efficiency and that there may be "noise" in these indicators, there does not seem to be a systematic bias in these measures of banking sector efficiency.

Demirgüç-Kunt et al. (1998) examine how foreign bank presence influences domestic banking efficiency. To measure foreign bank presence, I use their measure, *foreign*

banks, which equals the number of foreign banks divided by the total number of banks in the country. This provides an indicator of foreign bank presence. It does not indicate the extent of foreign bank activities in the country. As summarized above, domestic banks respond aggressively to foreign competition. Thus, it is important to use an indictor of foreign bank presence, rather than the percentage of the market that they ultimately capture.

To investigate the impact of foreign banks on domestic bank performance, Demirgüç-Kunt et al. (1998) control for a variety of financial and macroeconomic factors. Specifically, as regressors they include the lagged value of the equity–asset ratio, the ratio of noninterest-earning assets to total assets, the ratio of customer and short-term funding to total assets, GDP per capita, output growth, inflation, and the real interest rate. Panel A in Table 2 shows the regression results from the equations estimated in levels. Panel B presents the results using differenced data. Differencing the data captures how domestic bank efficiency changes with foreign bank entry. This provides a more direct measure of the impact on domestic banking efficiency of liberalizing restrictions on foreign banks.

Results and Policy Implications

The measure of foreign bank presence, *foreign banks*, enters all of the regressions negatively and significantly. Greater foreign bank presence is negatively associated with bank profits and bank overhead costs. This is consistent with the case-study evidence: foreign banks tend to spur competition and render national banking markets more efficient. Increased foreign entry forces domestic banks to eliminate excess overhead and accept lower profits. It should be noted that Demirgüç-Kunt et al. (1998) find that

Table 2. Foreign Banks and Domestic Bank Efficiency

	Before-tax profits/total assets	*Overhead cost/total assets*
A. *Domestic bank efficiency and foreign bank share*		
Foreign bank share	–0.027***	–0.034***
	(0.011)	(0.008)
Adjusted R^2	0.19	0.48
Observations	4,618	4,618
B. *Changes in domestic bank efficiency and foreign bank entry*		
Foreign bank share	–0.028***	–0.015***
	(0.010)	(0.005)
Adjusted R^2	0.15	0.12
Observations	4,592	4,592

Notes: *** indicates the coefficient is significantly different from zero at the 1% level. Regressions also include country and time dummy variables, the ratio of bank equity to total last period, noninterest-earning assets as a fraction of total assets, customer and short-term funding as a share of total assets, GDP per capita, the growth rate of GDP per capita, inflation, and the real interest rate. For complete regression results see Demirgüç-Kunt et al. (1998). Only domestic bank observations were used. Number of banks in each period is used to weight the observations. The regressions are estimated using weighted least-squares pooling bank-level data across 80 countries for the 1988–95 period. "Overhead cost" equals personnel expenses and other noninterest expenses. "Foreign bank share" is the number of foreign banks to total number of banks. Standard errors are given in parentheses.

the share of foreign banks in domestic banking activities is not significantly linked with domestic banking performance. Thus the major link between efficiency and foreign banks is associated with the number of foreign entrants, not with market share. This suggests that presence, *per se*, increases competition and efficiency. There may be simultaneity issues. These are likely to bias the results *against* the conclusions summarized above. Specifically, countries where domestic banks have big overhead expenditures and bloated profits are likely to attract foreign banks. This reverse causality would imply a positive relationship between foreign bank entry and domestic profits and overhead. In sum, the evidence suggests that liberalizing restrictions on foreign bank entry tends to boost domestic banking sector efficiency, which in turn accelerates economic growth.

6. Conclusions

This paper has discussed briefly some conceptual issues and empirical findings associated with the linkages between international financial integration and economic development. Since physical capital does not explain much of the cross-country differences in economic growth, and since we do not observe large flows of capital from rich to poor countries, this paper focuses on other channels via which international financial integration can influence economic development. I have focused on the impact of international financial integration on productivity growth.

My basic conclusions are as follows. First, liberalizing restrictions on international portfolio flows tends to enhance stock market liquidity. In turn, improvements in stock market liquidity accelerate economic growth primarily by boosting productivity growth. Second, allowing greater foreign bank presence tends to enhance the efficiency of the domestic banking system. In turn, better banks spur economic growth primarily by accelerating productivity growth. Thus, international financial integration can promote economic development by encouraging improvements in the domestic financial system, with positive ramifications for long-run productivity growth.

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